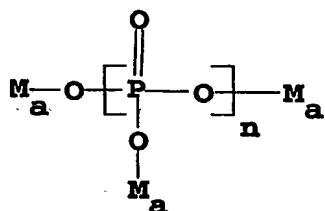


## Claims

1. Aqueous dispersion containing pyrogenically produced  
oxide particles of titanium, zinc, iron or cerium having  
5 an average particle size, expressed as a median value,  
in the dispersion of less than 200 nm, characterised in  
that the particle sizes of the oxide particles are not  
distributed symmetrically in the dispersion and the  
dispersion contains as dispersing agent at least one  
10 (poly)phosphate corresponding to the general formula I



1

wherein

15 M= H, an alkali metal, alkaline-earth metal,  
ammonium ion,  $Zn^{2+}$ ,  $Al^{3+}$ ,  $Fe^{2+}$ ,  $Fe^{3+}$ ,  
a= 1 or if M is a divalent cation, a = 1/2, if M is  
a trivalent cation, a = 1/3

with M being identical or different, and which has a pH value of 4.5 to 7.5.

2. Aqueous dispersion according to claim 1, characterised in that the metal oxide particles include the oxides of titanium, zinc, iron, cerium, mixed oxides thereof, and the mixed oxides of the above-mentioned oxides with aluminium or silicon.

25

3. Aqueous dispersion according to claim 1 or 2, characterised in that the surface of the metal oxide particles is modified by means of organic compounds.

4. Aqueous dispersion according to claims 1 to 3, characterised in that it contains preferably 20 to 60 wt.%, particularly preferably 30 to 50 wt.%, metal oxide particles.
- 5 5. Aqueous dispersion according to claims 1 to 4, characterised in that it contains preferably 0.2 to 30 wt.%, particularly preferably 0.5 to 15 wt.% of (poly)phosphates corresponding to the general formula I.
- 10 6. Aqueous dispersion according to claims 1 to 5, characterised in that it contains other auxiliary substances and additives.
7. Aqueous dispersion according to claims 1 to 6, characterised in that within the pH range of 4.5 to 7.5 15 it exhibits a zeta potential of less than -20 mV.
8. Aqueous dispersion according to claims 1 to 7, characterised in that it has a viscosity of less than 2000 mPas at a shear rate of 100 s-1.
9. Process for preparing the dispersion according to 20 claims 1 to 8, characterised in that a stream of an initial dispersion, which contains pyrogenically produced metal oxide particles, in each case at least one (poly)phosphate corresponding to the general formula I, water and optionally additional auxiliary 25 substances, is divided into at least two substreams, these substreams are placed in a high-energy mill under a pressure of at least 500 bar, preferably 500 to 1500 bar, particularly preferably 2000 to 3000 bar, are released through a nozzle and impact upon one another 30 in a gas- or liquid-filled reaction chamber and are ground.

10. Process according to claim 9, characterised in that the dispersion is ground several times by means of a high-energy mill.

11. Use of the aqueous dispersion according to claims 1 to 8 in the preparation of cosmetic formulations.